REMARKS

I. Introduction

In response to the Office Action dated January 11, 2008, claims 10, 28 and 46 have been canceled, and claims 1, 14, 16, 19, 32, 34, 27, 50 and 52 have been amended. Claims 1-9, 11-27, 29-45 and 47-54 remain in the application. Re-examination and re-consideration of the application, as amended, is requested.

II. Request for Information

In section (1) of the Office Action, a Request for Information was made under 37 C.F.R. §1.105. Specifically, the Office Action requests that the Applicant provide references to textbook(s), publication(s), etc., where the equations of claims 11-18, 29-36 and 47-54 can be found.

Applicant's attorney made inquiries of the Applicant in this regard. Applicant gave the Request due consideration and also consulted with other employees of the Assignee who worked on this project, which was known as the LTV (Life-Time Value) system. Applicant responded as follows:

- These claims recite FV (Future Value), which is a well known term in the art. This term may be found, for example, in textbooks or as functions used in MICROSOFT EXCEL.
- Applicant cited the description found in the "Help" function provided for MICROSOFT EXCEL.
- Applicant's attorney provides herewith print-outs from the "Help" pages from the MICROSOFT EXCEL web page describing the FV, PV (Present Value), NPV (Net Present Value) and PPMT (Principal PayMenT) functions therein (from the MICROSOFT EXCEL web page, select Functions Reference, then Financial, then FV/PV/NPV/PPMT).

Specifically, the equations found in 11-18, 29-36 and 47-54 were all derived using the information above, based on ideas and concepts that originated with the Applicant and other employees of the assignee during the development of the LTV system.

III. Claim Objections

In section (2) of the Office Action, claims 14, 16, 32, 34, 50 and 52 were objected to because of certain informalities.

Applicant's attorney has made the amendments above to overcome these objections.

IV. Prior Art Rejections

In section (3) of the Office Action, claims 1-5, 7, 10, 19-23, 25, 28, 37-41, 43, and 46 were rejected under 35 U.S.C. §103(a) as being unpatentable over Johnson et al., U.S. Patent No. 7,082,411 (Johnson) in view of Sandretto, U.S. Patent No. 5,812,988 (Sandretto). In section (4) of the Office Action claims 6, 24, and 42 were rejected under 35 U.S.C. §103(a) as being unpatentable over Johnson in view of Sandretto and further in view of Atkins, U.S. Patent No. 5,852,811 (Atkins). In section (5) of the Office Action, claims 8-9, 11-17, 26-27, 29-35, 44-45, and 47-53 were rejected under 35 U.S.C. §103(a) as being unpatentable over Johnson in view of Sandretto and further in view of Fundamentals of Financial Management by Kuhlemeyer (Kuhlemeyer).

However, in section (6) of the Office Action, claims 18, 36, and 54 were indicated as being allowable if rewritten in independent form to include the base claim and any intervening claims.

Applicant's attorney acknowledges the indication of allowable claims, but respectfully traverses the rejections. Specifically, Applicant's attorney submits that the combination of Johnson and Sandretto does not teach or suggest all of the various elements of Applicant's amended independent claims.

Nonetheless, the Office Action asserts the following:

> 3. Claims 1-5, 7, 10, 19-23, 25, 28, 37-41, 43 and 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent Number 7,082,411 to Johnson et al (hereinafter Johnson) in view of US Patent Number 5,812,988 to Sandretto (hereinafter Sandretto).
>
> As per claims 1, 19 and 37
>
> Johnson discloses selecting accounts, amounts and rates (asset data) from account data stored in a database using selection criteria specified by one or more rules (column 4, lines 10-19) and performing one or more Future Value (FV) (C_1, expected payoff) calculations on the selected accounts (column 9, lines 3-26 & 58-60) wherein the FV calculations determine a present value of an expected profitability value (score) of additional products that may be purchased (column

9, lines 3-26 & 58-60). Johnson further discloses propensity rules (risk) (column 9, lines 20-22 & column 16, lines 49-51).

Johnson does not specifically teach applying one or more FV propensity rules (risk) to the selected accounts using the selected amounts and rates.

Examiner notes that propensity is the probability that something is likely to happen, a risk measure. Johnson teaches risk. One skilled in the art at the time the invention was made would understand that propensity rules are rules that measure and determine risk is a rate used to discount or decrease future cash flow to obtain a net present value. Examiner also notes that the equation in the reference is a Future Value equation solving for Net Present Value (NPV). It would have further been obvious to one skilled in the art at the time the invention was made that this equation could easily be manipulated to solve for Future Value or any of the other variables in the equation.

Sandretto teaches applying one or more FV propensity rules (risk) to the selected accounts using the selected amounts and rates (abstract & column 4, lines 13-16).

Therefore it would have been obvious to one skilled in the art at the time the invention was made to apply one or more FV propensity rules (risk) to the selected accounts using the selected amounts and rates as taught by Sandretto as the propensity rules can be used to determine an asset's discount rate and therefore present value.

The Office Action also asserts the following:

As per claims 10, 28 and 46

Johnson discloses matching the FV propensity rule against the selected accounts (column 4, lines 10-15 & column 9, lines 20-22) and using the FV propensity rule to calculate a FV amount from FV expected values (column 9, lines 3-26). Examiner notes that propensity is the probability that something is likely to happen, a risk measure. Johnson teaches risk. One skilled in the art at the time the invention was made would understand that propensity rules are rules that measure and determine risk is a rate used to discount or decrease future cash flow to obtain a net present value. Examiner also notes that the equation in the reference is a Future Value equation solving for Net Present Value (NPV). It would have further been obvious to one skilled in the art at the time the invention was made that this equation could easily be manipulated to solve for Future Value or any of the other variables in the equation. Examiner further notes that Johnson further discloses assessing asset and respective data using an iterative and adaptive process (column 4, lines 10-13).

Johnson does not specifically teach determining an initial propensity rate for the matched accounts, calculating a rate change for the matched account, calculating an effective propensity rate for each forecast period by applying the rate change to each initial propensity rate for each forecast period, performing the FV propensity rule to calculate an FV amount from FV expected values and the effective propensity rates for each forecast period and storing the FV amount.

> Sandretto discloses determining an initial propensity rate for the matched accounts (column 4, lines 40-55), calculating a rate change for the matched account (column 17, line 59- column 18, line I), calculating an effective propensity rate (column 9, lines 11-19) for each forecast period (column 10, lines 1-7) by applying the rate change to each initial propensity rate (column 4, lines 36-67 & column 10, lines 1-7) for each forecast period (column 10, lines 1-7) performing the FV propensity rule to calculate an FV amount from FV expected values (abstract & column 4, lines 13-16) and the effective propensity rates (column 8, line 60- column 9, line 19) for each forecast period (column 10, lines 1-7) and storing the FV amount (column 23, lines 25- 26 and 60-61) and column 24, lines 17-23). Sandretto also teaches that the propensity rules can be used to determine an asset's discount rate (column 4, lines 13-16) and therefore the present value that Johnson discloses. Examiner notes that the reference teaches both storing projected returns as well as storing Net Present Value, the components of Future Value. It would have been obvious to one skilled in the art at the time the invention was made that storing of the components of Future Value could be used to easily determine the FV amount as FV is merely a calculation of the NPV in addition to returns.
>
> Therefore it would have been obvious to one skilled in the art at the time the invention was made to determining an initial propensity rate for the matched accounts, calculating a rate change for the matched account, calculating an effective propensity rate for each forecast period by applying the rate change to each initial propensity rate for each forecast period, performing the FV propensity rule to calculate the effective propensity rates for each forecast period and storing the FV amount as taught by Sandretto to account for both the increases and decreases of value needed to more accurately estimate future value based upon the iterative and adaptive process disclosed by Johnson.

Applicant's attorney respectfully disagrees with this analysis. As noted above, Applicants' independent claims 1, 19 and 37 have been amended to incorporate the elements of dependent claims 10, 28 and 46, respectively. As amended, Applicants' independent claims 1, 19 and 37 are patentable over the references.

Consider, for example, the portions of the Johnson and Sandretto references cited by the Office Action, which are set forth below:

> <u>Johnson: column 4, lines 10-19</u>
>
> Individual asset data (not shown) for each asset in portfolio 12 is entered into a database 76 from which selected data 78 is retrieved based on a given criteria 80 for the iterative and adaptive process 32. When criteria 80 is established for valuation of any asset, that established criteria 80 is stored in database 76 for use in valuating other asset data in database 76 which shares such an established criteria. Iterative and adaptive valuation process 32 thus develops 82 valuations (described below) and groups 84 them for use in bidding.

Johnson: column 9, lines 3-26

In general, NPV is defined as:

$$NPV = c_0 + \frac{c_1}{1+r}$$

where C.sub.0 is the investment at time 0, C.sub.1 is the expected payoff at time 1, and r is the discount factor. The basic idea is that a dollar today is worth more than a dollar tomorrow.

In the case of insurance policies, NPV is defined as:

$$NPV = \sum P - \sum E - (\sum C) \times \frac{A}{E_{w}}$$

where P is the premium, E is the expected nominal cost, and C is the claim cost. In essence, Equation B is how net income as the difference of profit and weighted expected risk is generated. Note that the summation is summing across all the policies in a specific segment. Also note that all the premium, nominal cost, and claim cost have been discounted before entering the equation. As a result, a profitability score is generated.

Johnson: column 9, lines 58-60

Each potential bidder has a range of possible bids that might be submitted to a sealed bid auction. The range of bids can be expressed as a statistical distribution. By stochastically sampling from a distribution of bid values, one possible auction scenario may be simulated. Further by using an iterative sampling technique, for example a Monte Carlo analysis, many scenarios are simulated to produce a distribution of outcomes. The distribution of outcomes include a probability of winning the auction item(s) and the value gain. By varying the value of ones own bid, a probability of winning the auction against ones own bid price can be determined.

Johnson: column 16, lines 49-51

The appropriate variance adjusted forecast is made for each asset and the valuation tables are constructed to include every asset in the portfolio. The recovery is valued with continuous probabilities at the unit of sale, which in one embodiment is a tranche. In the use of system 28, internal rate of return ("IRR") and variance would then be assessed. Preferred tranches have lower variances for a given IRR. The probability of each tranche's net present value ("NPV") to be above 0 is assessed using the project's discount rate. A discount rate is determined from the opportunity cost of capital, plus FX swap cost, plus risks in general uncertainties inherent in the variances of forecasted cash flow recovery. If it appears that there is more than a five-percent certainty that the project will have a negative NPV, no bid is made. Deal evaluation is by tranche with decision criteria being IRR, risk variance of the IRR in a tranche, estimated willingness and ability of the tranche to pay, time to profit ("TPP") and the risk variance in the payback by tranche, and NPV of the expected cash flow by tranche discounted to risk free rate.

Sandretto: Abstract

Methods and apparatus for: (1) inputting economic variables expected to influence future asset values and asset-specific variables; (2) estimating financial statements, future asset values, and tentative asset NPVs using estimated economic variables and estimated asset-specific variables; (3) estimating different financial statements, future asset values and current asset NPVs assuming different estimates of the economic variables that affect asset values; and (4) processes to: (a) equate; or (2) reduce to acceptably small numbers the differences between: (i) the risk measures, terminal values, default premiums, and risk premiums used to determine current values, and (ii) risk measures, terminal values, default premiums, and risk premiums implied by the estimates of economic and firm-specific variables.

Sandretto: column 4, lines 13-16 (actually, lines 7-19)

In practice, many analysts do use judgment to estimate discount rates and many are highly successful investors and managers. Other analysts prefer a more objective process. The prior art development that has had by far the most significant influence on the field of finance was independently developed by William Sharpe and John Lintner in 1964 and 1965. That prior art developed a theoretical mathematical relation between an asset's risk and its return (on investment). The resulting risk-measure can be used to determine an asset's discount rate. The theoretical relation between an asset's risk and return is known in the prior art finance literature as the Sharpe-Lintner capital asset pricing model (CAPM):

Sandretto: column 8, line 19 – column 9, line 19

It is another object of the present invention to provide a method and apparatus for creating a portfolio by: (1) estimating an initial set of cash flows for each asset in a set of two or more assets using known or conventional methods; (2) generate additional estimated cash flows based upon different estimates for one or more economic variables; (3) adjust the original set of cash flows and each additional set of cash flows for expected inflation; (4) determine an initial input risk measure for each asset based on a risk-return type asset pricing model; (5) determine an initial discount rate for each asset using the initial input risk measure for each asset and using different economic variables that relate to each set of cash flows (for example, the risk-free rate and the market risk premium which are typically different for each set of cash flows); (6) discount the inflation-adjusted cash flows at the discount rate to determine a present value for each set of cash flows; (7) use the present values to determine simulated returns for each asset; (8) use the simulated returns for each asset to determine at least one simulated market index return; (9) regress simulated asset returns against simulated market returns or else use division to determine an output risk measure for each asset; (10) use the resulting output risk measure for each asset to estimate a new input risk measure and; (11) repeats steps 1 through 10 (or 4 through 10 in some implementations) in an iterative process until, for each asset, the output risk

measure approximates to within desired accuracy the input risk measure used to determine the most recently iterated discount rate.

Sandretto: column 10, lines 1-7

The process begins by estimating an initial set of financial statements and cash flows for each asset (only cash flows if the asset is a bond or similar asset) for some number of periods using estimated operating, financing, accounting and economic variables an analyst has input into the process. Estimated cash flows may be also be adjusted for expected price changes, such as inflation.

Sandretto: column 17, line 59 – column 18, line 26

Step 130 tests whether the difference between each asset's input risk measure used to discount projected cash flows in Step 70 and that asset's output risk measure determined in Step 110 is within a predetermined acceptable range. If, in Step 130, the difference between the input risk measure and the output risk measure is greater than a predetermined amount for any asset, a new, adjusted input risk measure .beta. is determined in Step 140 for each such asset and the process returns back to Step 70 (or to Step 50 in some implementations where cash flows depend on the risk measure). However, unlike the iterative process for asset risk measures and for the risk premium, this difference cannot be reduced to an arbitrarily small amount, only to a minimum value that depends upon various input parameters and market prices for individual assets. Typically, but not in all cases, selecting a new .beta. that is between the input .beta. and the output .beta. will assure that the process will converge, as desired. If the difference between the input and output risk measures is less than a predetermined limit for each asset, Step 130 passes control to Step 150. Step 150, which is an optional, yet preferred step to the basic process, tests whether the difference between the sum of one or more estimated asset values in Step 70, and the sum of the actual market prices of those assets, is within a predetermined limit. If, in Step 150, the difference is greater than the predetermined limit, the process continues to Step 160 where a new market risk premium (E(R.sub.m)-R.sub.f) is determined. For example, if the total actual market value of the assets is greater than the total market value determined by the process, then the estimated risk premium should be increased. After the risk premiums are adjusted in Step 160, the process returns back to Step 70. When the difference between the total actual market value of the assets and the total values determined by the process are within a predetermined limit, the process continues from Step 150 to Step 162.

Sandretto: column 23, lines 25-42

The 0-n NPVs from Block 380 are used to determine 1-n simulated returns which are stored in Block 390. As illustrated in Block 390, RETURN 1 for ASSET 1 is determined by dividing NPV 1 from Block 380 by NPV 0 from Step 380 and subtracting 1. The last return, RETURN n, is determined by dividing NPV n in Block 380 by NPV 0 in Block 380 and subtracting 1. The other returns corresponding to ASSET 1 are determined in a similar manner and stored in Block 390. According to an alternative embodiment of the invention, the returns

may be determined differently, such that RETURN n in Block 390 could be determined by dividing NPV n in Block 380 by NPV n-1, in Block 380 and subtracting 1. Similar to Blocks 380, 410 and 440, Blocks 390, 420 and 450 may be implemented as a two-dimensional matrix with one dimension corresponding to the number of assets and the second dimension corresponding to the number of additional estimates of economic variables (total sets of economic estimates minus one).

Sandretto: column 23, lines 6-67

In Block 470 there are stored index returns determined using the index NPVs stored in Block 460. For example, index return 1 is determined by dividing NPV 1 from Block 460 by NPV 0 of Block 460 and subtracting 1. Index return n, which is also stored in Block 470, is determined by dividing index NPV n of Block 460 by index NPV 0 of Block 460 and subtracting 1 or, alternatively, by dividing index NPV n by index NPV n-1 and subtracting 1.

Sandretto: column 24, lines 17-39

The output risk measures .beta. for ASSET 1 through ASSET i which are determined as part of the process of the present invention are stored respectively in Blocks 480 through 500 and are used to determine new input risk measures .beta. which will be used to determine new NPVs for each of the assets which will then be stored back in Blocks 380, 410, and 440, and a new set of index NPVs to be stored in Block 460. That is, the output risk measure .beta. stored in Block 480 is used to determine a new input risk measure .beta. for use to determine a new set of NPVs for ASSET 1 which will be stored in Block 380. Typically, the output risk measure .beta. stored in Block 480 will be combined with the previous risk measure .beta. (used to determine the previous set of NPVs of Block 380), so that the process may determine a revised NPV 0, and NPV 1 through NPV n for ASSET 1. Similarly, the output risk measure .beta. for ASSET 2 in Block 490 is used, in combination with the previous risk measure .beta. for ASSET 2, to determine a revised NPV 0, and NPV 1 through NPV n for ASSET 2 which will be stored in Block 410; the output risk measure .beta. from Block 500 is used, in combination with the previous risk measure .beta. for ASSET i, to determine a revised NPV 0, and NPV 1 through NPV n for ASSET i which will be stored in Block 440.

Johnson merely describes a method of valuation of large groups of assets by partial full underwriting, partial sample underwriting and inferred values of the remainder using an iterative and adaptive statistical evaluation of all assets and statistical inferences drawn from the evaluation and applied to generate inferred values. Individual asset values are developed and listed in tables so that individual asset values can be taken and quickly grouped in any desired or prescribed manner for bidding purposes. The assets are collected into a database, divided by credit variable, subdivided by ratings as to those variables and then rated individually. The assets

are then regrouped according to a bidding grouping and a collective valuation established by cumulating the individual valuations.

The above portions of Johnson cited by the Office Action merely refer to establishing valuations of assets using NPV (Net Present Value), not FV (Future Value). However, as admitted by the Office Action, nowhere do the above portions of Johnson refer to FV (Future Value) propensity rules, initial propensity rates, rate changes, effective propensity rates, or the specific steps or functions performed by Applicants' claims.

Nonetheless, the Office Action cites Sandretto as teaching these elements of Applicants' claims. Sandretto merely describes methods and apparatus for: (1) inputting economic variables expected to influence future asset values and asset-specific variables; (2) estimating financial statements, future asset values, and tentative asset NPVs using estimated economic variables and estimated asset-specific variables; (3) estimating different financial statements, future asset values and current asset NPVs assuming different estimates of the economic variables that affect asset values; and (4) processes to: (a) equate; or (2) reduce to acceptably small numbers the differences between: (i) the risk measures, terminal values, default premiums, and risk premiums used to determine current values, and (ii) risk measures, terminal values, default premiums, and risk premiums implied by the estimates of economic and firm-specific variables.

The above portions of Sandretto cited by the Office Action refer to "future asset values," but Sandretto does not determine these values in the manner recited in Applicant's independent claims. Indeed, the portions of Sandretto cited against Applicant's dependent claims 10, 28 and 46, now incorporated into Applicant's independent claims 1, 19 and 37, do not teach or suggest FV propensity rules, initial propensity rates, rate changes, effective propensity rates, or the specific steps or functions performed by Applicants' claims. Instead, Sandretto merely refers to estimating discount rates by calculating risk measures, which are used to discount projected cash flows.

The remaining references, namely Atkins, and Kuhlemeyer, fail to overcome these deficiencies of Johnson and Sandretto. Recall that these references were cited only against dependent claims 6, 8-9, 11-17, 24, 26-27, 29-35, 42, 44-45, and 47-53, and were cited only for containing limitations shown in those dependent claims.

Consequently, the various elements of Applicant's claimed invention together provide operational advantages over Johnson, Sandretto, Atkins, and Kuhlemeyer. In addition,

Applicant's invention solves problems not recognized by Johnson, Sandretto, Atkins, and Kuhlemeyer.

Thus, Applicant submits that independent claims 1, 19, and 37 are allowable over Johnson, Sandretto, Atkins, and Kuhlemeyer. Further, dependent claims 2-18, 20-36, and 38-54 are submitted to be allowable over Johnson, Sandretto, Atkins, and Kuhlemeyer in the same manner, because they are dependent on independent claims 1, 19, and 37, respectively, and thus contain all the limitations of the independent claims. In addition, dependent claims 2-18, 20-36, and 38-54 recite additional novel elements not shown by Johnson, Sandretto, Atkins, and Kuhlemeyer.

V. <u>Conclusion</u>

In view of the above, it is submitted that this application is now in good order for allowance and such allowance is respectfully solicited.

Should the Examiner believe minor matters still remain that can be resolved in a telephone interview, the Examiner is urged to call Applicant's undersigned attorney.

Respectfully submitted,

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